

CLAIMS

1. (currently amended) An electronic switching apparatus for flexibly interconnecting a plurality of signal endpoints, the apparatus comprising:

a first circuit configured to receive at least one input signal from at least one input endpoint, the first circuit having at least one pair of barrel shift registers coupled to at least one of the at least one input endpoint and configured to receive the at least one input signal, the first circuit further configured to shift and rotate the at least one input signal and further configured to transmit at least one output signal; and

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a second circuit [connected to outputs from the first circuit and] configured to send at least one received signal to at least one output endpoint and comprising at least one multiplexer directly coupled to at least one of the barrel shift registers.

2. (previously presented) The electronic switching apparatus of claim 1, wherein the at least one input signal comprises a data signal that is configured to be received in serial form, the data signal including a plurality of data channels interleaved therein.

3. (currently amended) The electronic switching apparatus of claim 2, wherein ~~the second circuit further comprises~~ the at least one multiplexer is configured to be selectably connected to the at least one pair of barrel shift registers thereby effectively enabling digital signal switching simultaneously between the at least one input endpoint and the at least one output endpoint.

4. (previously presented) The electronic switching apparatus of claim 1, wherein the at least one input signal comprises a data signal that is configured to be received in parallel form and converted to serial form.

5. (previously presented) The electronic switching apparatus of claim 2, wherein the at least one pair of barrel shift registers is configured to interconnect a plurality of received input signals at different times.

6. (previously presented) The electronic switching apparatus of claim 1, wherein the at least one input endpoint or the at least one output endpoint corresponds to at least one pin for a coder/decoder (codec) device, such codec device being compliant with an AC97 or an I2S convention.

7. (currently amended) A method for electronic signal coupling, the method comprising the steps of:

receiving a first set of digital signals, the received first set of digital signals being provided to at least one pair of barrel shift registers;

shifting and rotating the first set of digital signals; and

transmitting a second set of digital signals, the transmitted second set of digital signals being provided from a plurality of multiplexers, wherein at least one of the plurality of multiplexers is being directly selectably connected to at least one of the barrel shift registers such that at least one signal selected in the first set of digital signals is selectably coupled for transmission in the second set of digital signals.

8. (previously presented) The method of claim 7, wherein the first set of digital signals comprises a data signal which is received in either serial or parallel form, the data signal being converted to serial form when received in parallel form.

9. (previously presented) The method of claim 7, wherein a plurality of digital signals in the first set of digital signals is transmitted as digital signals in the second set of digital signals separately at different times.

10. (previously presented) The method of claim 7, wherein at least one transmitted digital signal from the second set of digital signals is coupled to at least one pin associated with a coder/decoder (codec) according to an AC97 or I2S signal interface.

11. (previously presented) The method of claim 7, wherein the step of transmitting further comprises transmitting the at least one output signal to at least one multiplexer at different times.

12. (previously presented) The electronic switching apparatus of claim 1, wherein the at least one pair of barrel shift registers are loadable barrel shift registers.

13. (previously presented) The electronic switching apparatus of claim 1, further comprising a plurality of multiplexer modules.

14. (currently amended) A system for electronic signal coupling comprising:

means for receiving a first set of digital signals, the received first set of digital signals being provided to at least one pair of barrel shift registers;

means for shifting and rotating the first set of digital signals; and

means for transmitting a second set of digital signals, the transmitted second set of digital signals being provided from a plurality of multiplexers, wherein at least one of the plurality of multiplexers is being directly-selectably connected to at least one of the barrel shift registers such that at least one signal selected in the first set of digital signals is selectably coupled for transmission in the second set of digital signals.
